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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,036	12/12/2003	Kenneth D. McKibben	HAYES P23US0	2467

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VARNUM, RIDDERING, SCHMIDT & HOWLETT LLP
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EXAMINER

KERNS, KEVIN P

ART UNIT	PAPER NUMBER
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1725

DATE MAILED: 12/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/735,036	Applicant(s) MCKIBBEN ET AL.	
	Examiner Kevin P. Kerns	Art Unit 1725	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The corrected "marked-up" Figure 1 was received on April 1, 2005. This drawing sheet is objected to since it is denoted by "replacement sheet". Although the applicants' corrections to delete "30" and "58" are correct, they are not be shown in a "replacement" drawing sheet. Although the drawing requirement will be held in abeyance, the applicants are requested to submit Figure 1 as a formal (clean copy) "replacement" sheet to overcome this objection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai (US 3,939,899) in view of Kodama (JP 63-278634 – a complete translation of the Japanese document is enclosed with this Office Action).

Kawai discloses a shell molding machine (provided with a heater/burner manifold in the form of setting plate 10 to provide heat to sand cores) and a method of casting and curing sand cores, in which the method includes the steps of filling a blow head car 17 of a movable blow head 18 with sand from hopper 25; moving the blow head 18 (via rails 20 engaging the rollers 17' of blow head car 17) away from the sand hopper 25 and towards a core box (1,1a,2) that is locked (vertically and horizontally) in position by stopper cylinder assembly 33 and locking rods 33', wherein the blow head 18 becomes aligned in position with a blow valve in the form of a piston cylinder assembly 21 provided with a compressed air reservoir, thus filling/blowing sand through blow plate 19 of the blow head car 17 and into the core box (1,1a,2) prior to retracting the blow head 18 and ejecting/separating the cope and drag cores from the core box to a core unloader table 13 (abstract; column 2, lines 25-68; column 3, lines 1-68; column 4, lines 1-53; and Figures 1-4). Kawai does not specifically disclose the use of a vacuum manifold in the shell molding machine.

However, Kodama discloses a supply and recovery system for molding sand, in which the system includes a vacuum pump 2 and attached manifold connected to a sand suction tube 11 inserted into a sand filled casting flask 4, and the system is operable to recover and return unused sand to a sand hopper (sand storing tank 7), in

which the vacuum pump and manifold is advantageous for quickly recovering molding sand after a shaking out process, thus enabling unused sand to be recovered and stored in the sand storing tank for future use (abstract; and Figures 1-3).

It would have been obvious to one of ordinary skill in the art at the time the applicants' invention was made to modify the method of casting and curing sand cores, as disclosed by Kawai, by adding a vacuum pump/manifold, as taught by Kodama, in order to recover molding sand after a shaking out process, thus enabling unused sand to be recovered and stored in the sand storing tank for future use (Kodama; abstract).

Response to Arguments

5. The examiner acknowledges the applicants' amendment received by the USPTO on November 14, 2005. The corrected drawing sheet (Figure 1) is approved with regard to deletion of "30" and "58" from Figure 1, but a formal drawing sheet for Figure 1 is requested (see paragraph 1) and will be held in abeyance. Prior claim objections to claims 1 and 5 have been overcome by the claim amendments. It is noted that a complete translation of JP 63-278634 is included with this Office Action and is cited in PTO-892. Claims 1 and 3-6 remain under consideration in the application.

6. Applicants' arguments filed November 14, 2005 have been fully considered but they are not persuasive.

With regard to the applicants' remarks/arguments set forth on pages 4 and 5 of the amendment, the examiner respectfully disagrees with the applicants'

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characterization of the Kodama reference, as a sand suction tube 11 is operable to be inserted into sand filled casting flask 4 to recover and return unused sand to a sand hopper (sand storage tank 7). The applicants' statement that the unused sand occurs via a "shaking out" process is not pertinent to claim 1, as the vacuum system (suction tube 11) of Kodama is operable to recover/return the unused sand (via recycling) to the sand hopper for use in a subsequent casting cycle. As a result, it is deemed that Kodama (JP 63-278634) remedies this deficiency of Kawai, and this combination of references remains valid under 35 USC 103(a), as set forth in paragraph 4.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kevin P. Kerns whose telephone number is (571) 272-1178. The examiner can normally be reached on Monday-Friday from 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Dunn can be reached on (571) 272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kevin P. Kerns *Kevin Kerns 11/28/05*
Primary Examiner
Art Unit 1725

KPK
kpk
November 28, 2005